

Appl. No. 09/771,809

Atty Docket No.: APP 1372-US (15884-54)

CLAIM AMENDMENTS

Claims 1 (Withdrawn): A method of synthesizing a particulate zero strain lithium titanate intercalation compound comprising:

providing a homogeneous precursor mixture comprising nanostructure TiO_2 and at least one thermolabile source of lithium ions;

heating said precursor mixture rapidly to an annealing temperature of about 750-800°C;

holding said mixture at said annealing temperature for a period of time not substantially longer than that required to effect the maximum available reaction of said mixed precursor components in synthesizing said intercalation compound particles; and

cooling said synthesized particles rapidly to a temperature below the reaction temperature required for the synthesis of said intercalation compound, thereby preventing further growth of said particles.

Claim 2 (Withdrawn): A method according to claim 1 wherein said step of heating said precursor mixture comprises heating to said annealing temperature in about 2 minutes in the presence of a heating medium.

Claim 3 (Withdrawn): A method according to claim 2 wherein said heating medium consists essentially of ambient atmosphere.

Claim 4 (Withdrawn): A method according to claim 1 wherein said step of holding said mixture comprises holding at said annealing temperature for about 15-30 minutes in the presence of a heating medium.

Claim 5 (Withdrawn): A method according to claim 4 wherein said heating medium consists essentially of ambient atmosphere.

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Claim 6 (Withdrawn): A method according to claim 1 wherein said step of cooling said synthesized particles comprises cooling below said reaction temperature in about 2 minutes in the presence of a cooling medium.

Claim 7 (Withdrawn): A method according to claim 6 wherein said cooling medium consists essentially of ambient atmosphere.

Claim 8 (Currently amended): A ~~nanosstructure~~ particulate zero strain lithium titanate intercalation compound having particle sizes of less than 100 nm.

Claim 9 (Currently amended): A ~~nanosstructure~~ particulate lithium titanate intercalation compound having particle sizes of less than 100 nm synthesized by a method comprising:

providing a homogeneous mixture of co-reactant precursors comprising nanostructure TiO_2 and at least one thermolabile source of lithium ions;

heating said mixture rapidly to a reactive annealing temperature of about 750-800°C;

holding said mixture at said annealing temperature for a period of time not substantially longer than that required to effect the maximum available reaction of said mixed precursors in synthesizing said ~~nanosstructure~~ intercalation compound particles of less than 100 nm; and

cooling said synthesized particles rapidly to a temperature below the reaction temperature required for the synthesis of said intercalation compound, thereby preventing further growth of said particles ~~while retaining said nanosstructure.~~


Claim 10 (Currently amended): A rechargeable electrochemical cell comprising:

a negative electrode member comprising a first electrochemically active material;

a positive electrode member comprising a second electrochemically active material; and

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 a separator member comprising an electrolyte interposed between said negative and positive electrode members; wherein at least one of said active materials comprises a ~~nanoscale~~ particulate zero strain lithium titanate intercalation compound having particle sizes of less than 100 nm.
